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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/081,629	02/20/2002	Steven J. Taylor	03004.009800	1916

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EXAMINER	
EGAN, BRIAN P	

ART UNIT	PAPER NUMBER
1772	

DATE MAILED: 12/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/081,629	TAYLOR, STEVEN J.	
	Examiner	Art Unit	
	Brian P. Egan	1772	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 October 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *12-18* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11,19 and 20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Claims 12-18 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected method of forming a reinforced composite material, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 5. The Examiner requests that in the reply to this office action that all of claims 12-18 are clearly delineated as canceled or withdrawn – it is unclear why the Applicant has amended several of these claims while subsequently stating that these claims have been withdrawn.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-11 and 19-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The Applicant's newly amended claims add the limitation that the first panel is made of two or more layers. The originally filed specification, however, only states that "the invention also provides a method for the production of such a material, in which there are provided a laminate panel of a type made by heating and compressing at least a first layer of

paper and quantity of resin, and a strengthening panel of a type made by embedding a reinforcement in a layer of a binder material (see pages 3-4 of specification)." The aforementioned disclosure fails to make any explicit remarks with regards to a multilayered first panel nor does it mention that a multilayered panel comprises two or more layers of paper impregnated with resin.

The Applicant is required to cancel the new matter in their response to this office action.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-8, 10-11, and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Min (#6,093,473) in view of Emanuel et al. (#4,356,230).

Min teaches a reinforced composite material comprising a first panel made of two or more layers of paper impregnated with resin (Fig. 2, #5; Col. 7, lines 8-40), a plastic strengthening panel made of polyester (Fig. 2, #10; Col. 8, lines 16-21), and a waterproof adhesive layer disposed between the first panel and the strengthening panel to adhere the first panel and the strengthening panel together (Fig. 2, #9; Col. 8, lines 46-55).

Min fails to teach the use of a fiberglass reinforced polyester sheet.

Emanuel et al., however, teach that it is notoriously well known in the plastics art to provide polyester substrates with fibrous reinforcement material such as woven glass fiber (i.e.,

fiberglass) (Col. 1, lines 10-26; Col. 3, lines 16-18). It is noted that a woven structure is consistent with an oriented mesh as claimed by the Applicant. Emanual et al. teach the use of fibrous reinforcement materials for the purpose of improving the impact strength, dimensional stability, and other physical properties of the polymeric substrate (Col. 1, lines 10-13). It would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have combined the teachings of Min and Emanuel et al. since each of the aforementioned references are analogous insofar as being directed at reinforced plastic substrates.

Therefore, it would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have modified Min to include a fiberglass reinforcing material within the polyester strengthening panel as taught by Emanuel et al. in order to improve the impact strength, dimensional stability, and other physical properties of the polyester layer.

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Min (#6,093,473) in view of Emanuel et al. (#4,356,230), and further in view of Chang et al. (#6,274,674).

Min and Emanuel et al. teach a reinforced composite material as detailed above. Min teaches the use of a waterproof adhesive and teaches that any adhesive can be used as long as it is waterproof and is compatible with the layers that it comes into contact with (Col. 8, lines 49-51). Although Min fails to explicitly state that the waterproof adhesive is a hot melt adhesive or contact cement, it is notoriously well known in the art to provide hot melt adhesives exhibiting waterproof properties as evidenced by Chang et al. (Col. 3, lines 44-61). Chang et al. teach the use of a solvent free, moisture curable, reactive hot melt adhesive for the purpose of providing an adhesive exhibiting excellent physical characteristics, such as shear thinning rheological behavior, improved green strength, water resistance, and adhesion to a variety of substrates (Col.

3, lines 51-55). It would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have selected a waterproof hot melt adhesive as taught by Chang et al. as the waterproof adhesive used in the reinforced composite material product of Min since each of the aforementioned references are analogous insofar as being directed at providing adhesives exhibiting waterproof properties and improved adhesion between various substrates.

Therefore, it would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have modified Min (and Emanuel et al.) to include a hot-melt, waterproof adhesive as taught by Chang et al. in order to provide an adhesive exhibiting excellent physical characteristics, such as shear thinning rheological behavior, improved green strength, water resistance, and adhesion to a variety of substrates.

7. Claims 1-6, 8, and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 57-176160 (hereinafter JP '160).

JP '160 teaches a reinforced composite material comprising a first panel ("PVF resin sheet" – see Abstract), a strengthening panel ("glass fiber reinforced unsaturated polyester resin sheet" – see Abstract), and a layer of adhesive disposed between the first panel and the strengthening panel to adhere the laminate panel and the strengthening panel together (see Abstract). The strengthening panel comprises a polyester plastic copolymer sheet embedded with glass fibers, i.e. fiberglass ("glass fiber reinforced unsaturated polyester" – see Abstract).

JP '160 fails to teach that the first panel is made of two or more layers and instead only teaches that the first panel is a PVF resin sheet – thereby implicitly teaching a single layer structure. It would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made, however, to provide a multilayered PVF resin sheet structure comprising at

least two PVF resin layers, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. Such a modification would have been desired since the addition of a second layer of PVF resin would provide further structural integrity to the substrate.

8. Claims 1-6, 8, and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chung et al. (#4,923,756).

Chung et al. teach a reinforced composite material comprising a first panel ("first unprimed FRP, SMC, or plastic substrate" – Col. 3, lines 13-14), a strengthening panel ("second unprimed FRP, SMC, or plastic substrate" – Col. 3, lines 14-15), and a layer of adhesive disposed between the first panel and the strengthening panel to adhere the laminate panel and the strengthening panel together (Col. 3, lines 15-26). The strengthening panel comprises a polyester plastic copolymer sheet embedded with glass fibers, i.e. fiberglass ("FRP" (fiberglass reinforced polyester) – Col. 3, lines 55-57).

Chung et al. fail to teach that the first panel is made of two or more layers and instead only teach that the first panel is an unprimed FRP, SMC, or plastic substrate. It would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made, however, to provide a multilayered FRP, SMC, or plastic substrate structure comprising at least two layers, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. Such a modification would have been desired since the addition of a second layer of FRP, SMC, or plastic would provide further structural integrity to the substrate.

9. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP '160 in view of Shaw et al. (#4,643,940).

JP '160 teaches a reinforced composite material as detailed above. JP '160 is silent as to whether the fiberglass particles are oriented in a mesh or randomly oriented. It is notoriously well known in the reinforced composite art, however, to randomly orient fiberglass particles as evidenced by Shaw et al. (see Abstract). Thus, depending on the desired end product, it would have been obvious to one of ordinary skill in the art to modify JP '160 by randomly orienting the fiberglass fibers as taught by Shaw et al. Furthermore, it would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to either arrange the fiberglass in a random orientation or mesh-type structure since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

10. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chung et al. ('756) in view of Shaw et al. (#4,643,940).

Chung et al. teach a reinforced composite material as detailed above. Chung et al. are silent as to whether the fiberglass particles are oriented in a mesh or randomly oriented. It is notoriously well known in the reinforced composite art, however, to randomly orient fiberglass particles as evidenced by Shaw et al. (see Abstract). Thus, depending on the desired end product, it would have been obvious to one of ordinary skill in the art to modify Chung et al. by randomly orienting the fiberglass fibers as taught by Shaw et al. Furthermore, it would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to either arrange the fiberglass in a random orientation or mesh-type structure since it has been held

that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

11. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP '160 in view of Votolato et al. (US 2001/0054264).

JP '160 teaches a reinforced composite material as detailed above. JP '160 further teaches an adhesive composition comprising a cured unsaturated polyester resin of bisphenol type, vinyl ester resin, or oligoacrylate ester (see Abstract) but fails to explicitly state whether the aforementioned resin types are hot melt adhesives. It is notoriously well known in the reinforced composite art, however, to select a known adhesive type depending on the desired end product as detailed by Votolato et al. Votolato et al. teach that in the formation of high pressure laminates (see p.1, paragraph [0003]), adhesive types may be selected from the group consisting of water-based contact adhesives, solvent-based contact adhesives, epoxy and cyanoacrylate adhesives, and hot melt adhesives (see p.1, paragraph [0005]) depending on the desired end product. Therefore, it would have been obvious to one of ordinary skill in the art to have substituted the polyester adhesive of JP '160 with a functionally equivalent hot melt adhesive as taught by Votolato et al. depending on the desired end product.

12. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chung et al. ('756) in view of Votolato et al. (US 2001/0054264).

Chung et al. teach a reinforced composite material as detailed above. Chung et al. further teach an adhesive composition comprising a prepolymer and an aliphatic isocyanate (Col. 3, lines 15-26) but fail to explicitly state whether the aforementioned adhesive is a hot melt adhesive. It is notoriously well known in the reinforced composite art, however, to select a

known adhesive type depending on the desired end product as detailed by Votolato et al. Votolato et al. teach that in the formation of high pressure laminates (see p.1, paragraph [0003]), adhesive types may be selected from the group consisting of water-based contact adhesives, solvent-based contact adhesives, epoxy and cyanoacrylate adhesives, and hot melt adhesives (see p.1, paragraph [0005]) depending on the desired end product. Therefore, it would have been obvious to one of ordinary skill in the art to have substituted the adhesive of Chung et al. with a functionally equivalent hot melt adhesive as taught by Votolato et al. depending on the desired end product.

Response to Arguments

13. Applicant's arguments with respect to claims 1-11 and 19-20 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian P. Egan whose telephone number is 703-305-3144. The examiner can normally be reached on M-F, 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Y. Pyon can be reached on 703-308-4251. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

BPE 12/8/03

HAROLD PYON
SUPERVISORY PATENT EXAMINER 12/9/03
1772